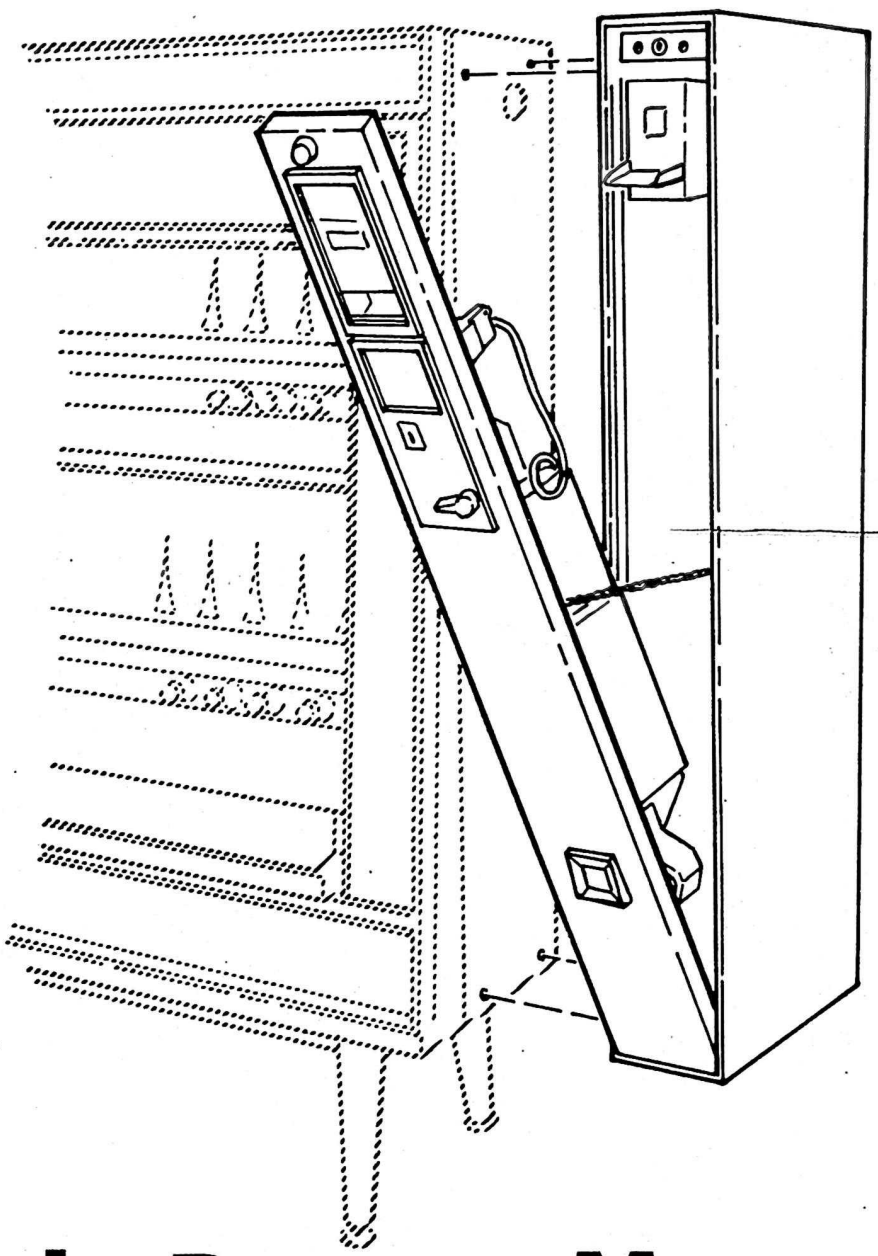
Billmate 1™

Installation Instructions



and Parts Manual

JANUARY 1989

5911001
REV F

WARRANTY

The BILLMATE 1™ unit is warranted for one (1) year against defective parts and workmanship. Any part or parts, which are proved to be defective within one (1) year of the date of shipment, will be repaired or replaced free of charge when the defective part is returned with the transportation charges prepaid to the destination designated by the National Vendors' Parts Department.

This warranty applies only to the original purchaser of the BILLMATE 1™ unit and is null and void if the BILLMATE 1™ unit is sold during the period of warranty.

This warranty is also null and void for all electrical components, wiring, or circuits, and/or for all mechanical parts or assemblies damaged as a result of operating the BILLMATE 1™ unit at other than 110-120 volts, 60 Hertz current.

No warranty is given or implied on incandescent lamps, neon lamps, fluorescent lamps, ballasts, starters, and other expendable items.

Further, National Vendors is not responsible for any costs of service rendered, or repairs made, at other than National Vendors, or by anyone other than an authorized factory service representative of National Vendors, unless authorization to incur such expense has been given in writing by National Vendors prior to the incurring of such expense.

This warranty is in lieu of all other warranties expressed or implied, including, without limitation, warranties of merchantability, and all other obligations or liabilities on National Vendors' part; and National Vendors neither assumes nor authorizes any person to assume for it, any other obligation or liability in connection with the sale of said equipment or any part thereof.

CRANE NATIONAL VENDORS
5055 Natural Bridge
St. Louis, Missouri 63115

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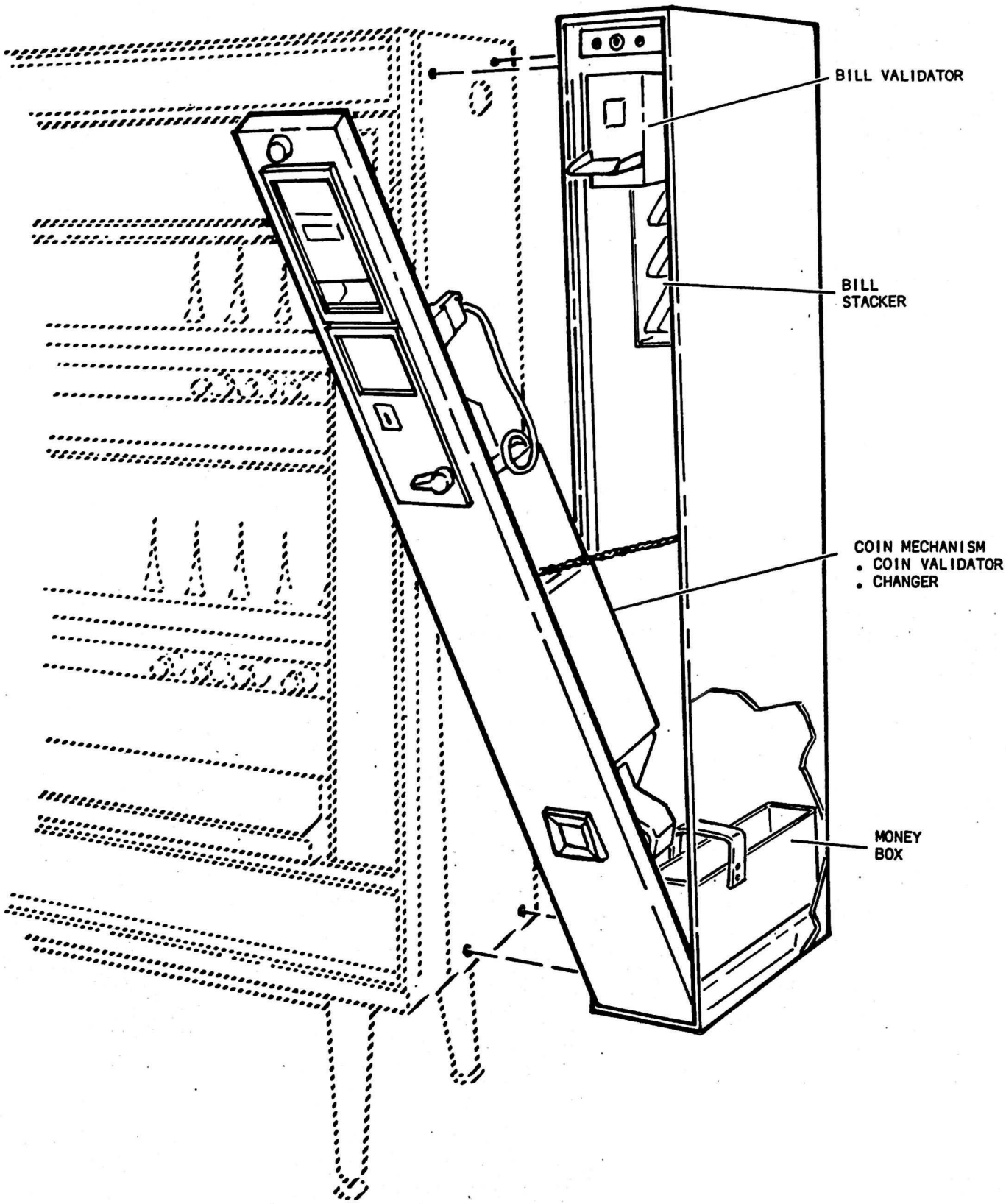


COMPONENT LOCATION

INTRODUCTION

The BILLMATE 1™ monetary unit increases a merchandiser's credit capability, by accepting both coins and dollar bills. The BILLMATE unit may be retrofitted (in the field) to a National Vendors® 222 Merchandiser (lift-off door only).

The BILLMATE unit utilizes the COINTRON™ 525B changer and the BUCKPASSER II™ bill validator. After bill validation, a billstacker (1600 bill capacity) automatically stacks dollar bill.

The cabinet is fabricated with 16 gauge steel, hemmed with interlock angles on the sides and top.

The door is fabricated with 14 gauge steel and has 1" deep flanges added to the corners. The door, which supports the coin mechanism, opens approximately 30° from the face of the cabinet for component access. A MEDECO (registered) lock is used to secure the door.

SPECIFICATIONS

DIMENSIONS	45" high 5" wide 13-1/4" deep
WEIGHT	70 lbs.
ELECTRICAL REQUIREMENTS	120 Volts, 60 Hertz, 2 Amps
COLOR	Warm Black

COIN MECHANISM: COINTRON 525B

The COINTRON 525B is a single price changer that has escrow capability and nickel-dime-quarter payout. The changer is mated with the NV 300 coin validator.

BILL VALIDATOR: BUCKPASSER II

The BUCKPASSER II bill validator magnetically scans bills for proper ink content and precise printed patterns. The drive motor automatically reverses to reject counterfeit bills.

UNPACKING AND INSPECTING

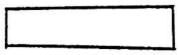
Verify the model and part numbers with the invoice or freight bill; immediately report any shortage or discrepancy to the carrier.

Remove and save all shipping and packing materials until a thorough inspection has been completed.

Examine the unit for dents, scratches or other damage resulting from improper handling. If any shipping damage is detected, file an immediate claim with the carrier.

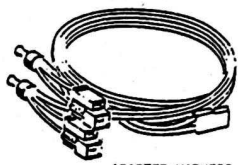
The parts necessary for retrofitting are shipped with the BILLMATE. Check the parts received with the following parts list. If any parts are missing, contact National Vendors Parts Department immediately. Refer to Figure 1 for major part identification.

Index	Part Number	Description	Quantity
	COMMON PARTS - (1-7)		
1.	5911117	Display Label Cover	1
2.	4021063	Snap Bushing 7/8 ID	1
3.	5580067	Adapter Harness	1
4.	5911118	Coin Casting Cover	1
5.	2204513	Wire Tie	1
6.	5911125	Money Box Assembly	1
7.	5911103	Hardware Bag (Consists of 8-19)	1
8.	1171022	5/16 Nut	6
9.	1171052	5/16 x 3/4 Bolt	4
10.	1212144	Push-On Retainer	5
11.	1402100	Wire Clip	2
12.	2237002	Pack Leveler Washer	1
13.	6131143	Cable Clamp	3
14.	9900121	7/16 x .203 Washer	1
15.	9900147	11/16 x 11/32 Washer	5
16.	9900205	No.10 x 3/8 Hex Hd Screw	2
17.	1451056	No.8 x .31 Hex Hd Screw	2
18.	2221908	Carriage Bolt	1
19.	9900152	No.10 Nut	1
	222 APPLICATION ONLY (20-23)		
20.	5911404	Sidewall Harness	1
21.	5911406	Bar and Actuator Assembly	1
22.	5911405	Solenoid and Bracket	1
23.	5911407	Bracket and Switch Assembly	1
	800 APPLICATION ONLY (24-27)		
24.	5911418	Solenoid and Harness Assembly	1
25.	5911414	Bracket and Switch Assembly	1
26.	5580056	Cam and End Arm Assembly	1
27.	5580060	Washer-End Arm Cam	1



DISPLAY LABEL
COVER
5911117

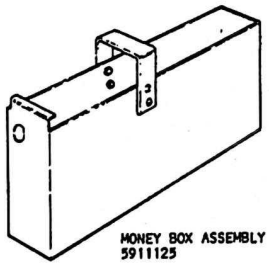
SNAP BUSHING
4021063



ADAPTER HARNESS
5580067

COIN CASTING
COVER
5911118

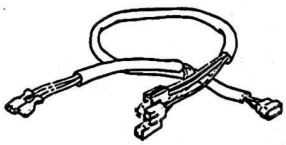
WIRE TIE
2204513



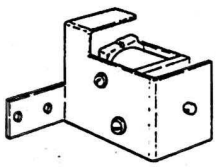
MONEY BOX ASSEMBLY
5911125

HARDWARE BAG
5911003

222 ONLY



SIDEWALL HARNESS
5911404

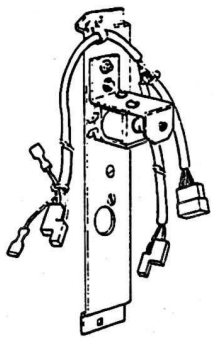


SOLENOID AND BRACKET
5911405

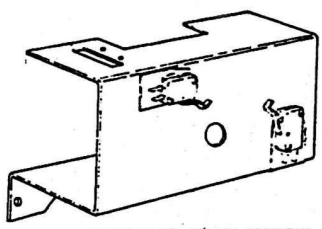
BAR AND ACTUATOR
ASSEMBLY
5911406

BRACKET AND SWITCH
ASSEMBLY
5911407

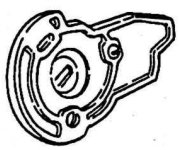
800 ONLY



SOLENOID AND HARNESS ASSEMBLY
5911418



BRACKET AND SWITCH ASSEMBLY
5911414



CAM AND END ARM ASSEMBLY
5580056

WASHER-END ARM CAM
5580060

TO INSTALL THE BILLMATE 1™:

1. Disconnect the merchandiser cord from the service outlet.
2. Remove cabinet door.
3. Slide mechanism partially out of cabinet, leaving the right sidewall of the mechanism exposed.
4. Merchandisers equipped with a mechanical coin mechanism will need an ACMR adapter harness and cable clamps installed as shown in Figure 2.

NOTE

The ACMR adapter harness has been made to accommodate various merchandisers. If excessively long, take up the slack and tie together with the wire tie.

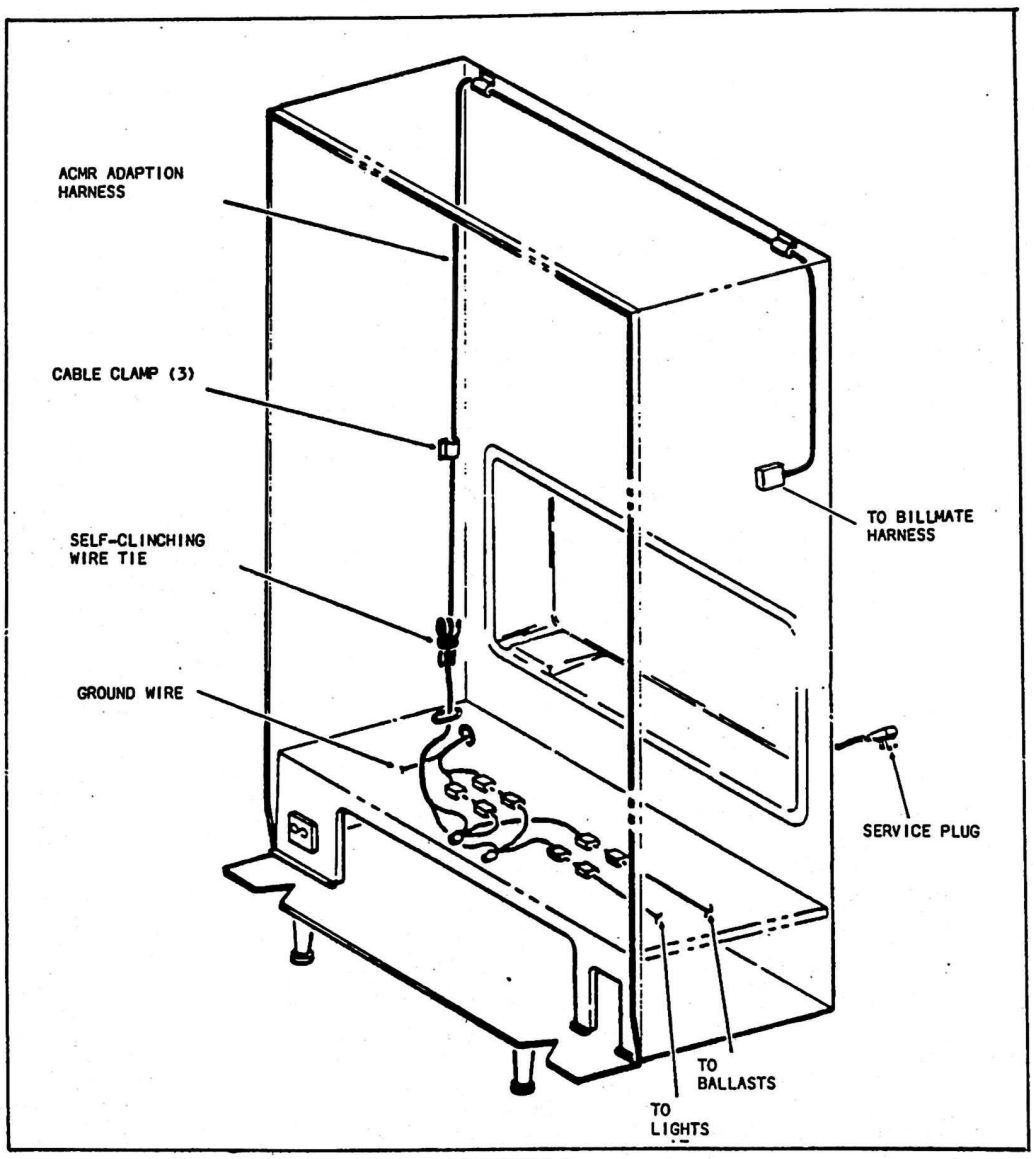


FIGURE 2

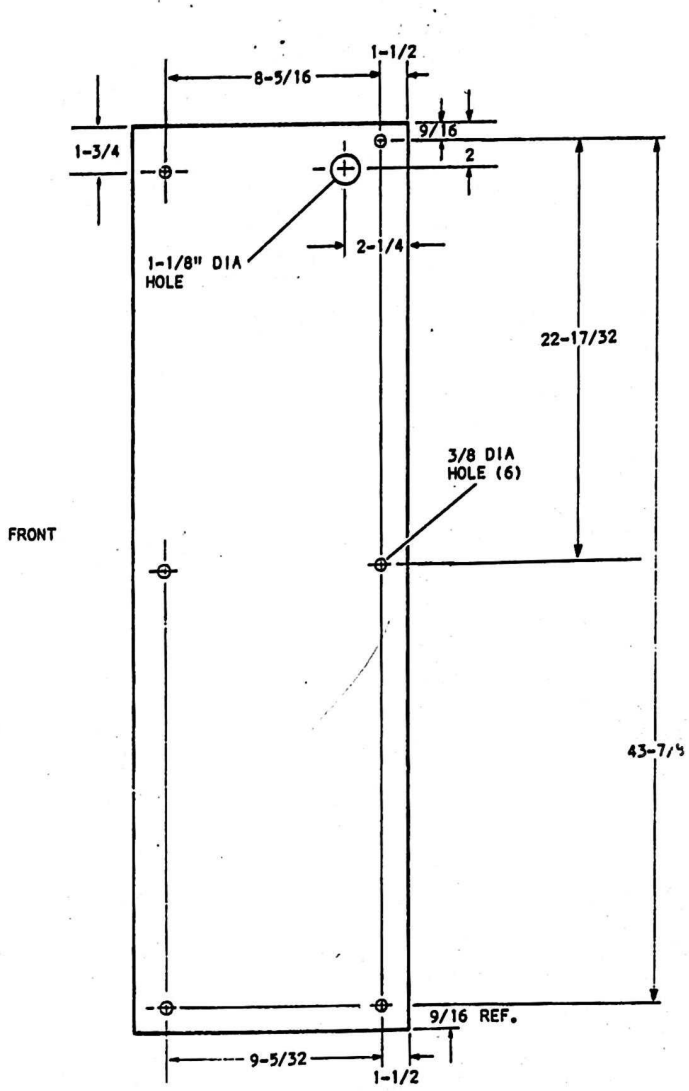


FIGURE 3

CABINET RIGHT SIDEWALL

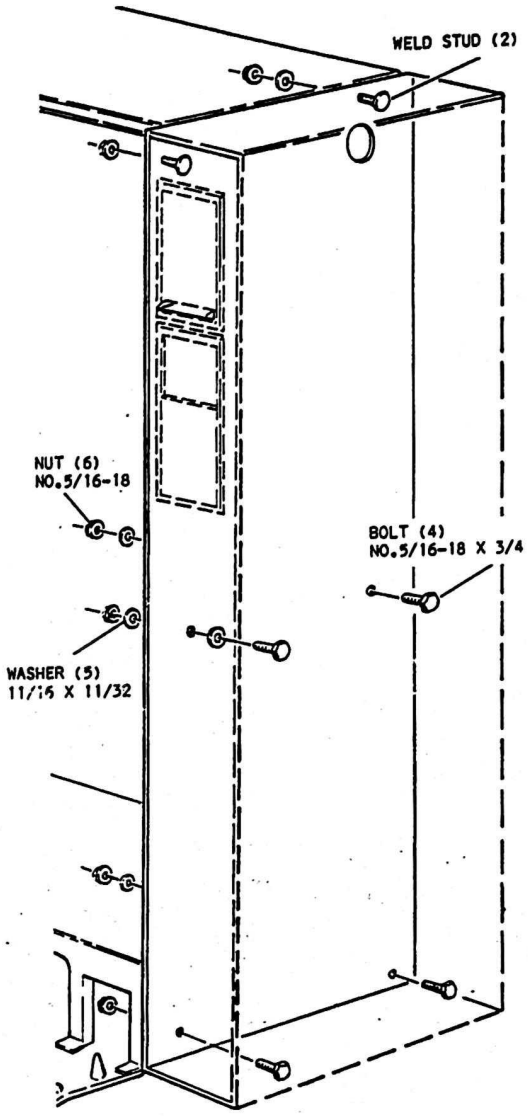


FIGURE 4

5. Drill six 3/8" diameter holes and cut a 1-1/8" diameter hole in the right side of the cabinet, refer to Figure 3 for location of holes. Insert snap bushing into the 1-1/8" hole.

NOTE

A hole saw or knockout punch may be used to make the 1-1/8" hole.

6. Partially insert Billmate harness into the snap bushing.

7. Lift Billmate, inserting weld studs into the top two holes of the merchandiser's right sidewall.

8. Attach bolts, washers and secure nuts as shown in Figure 4.

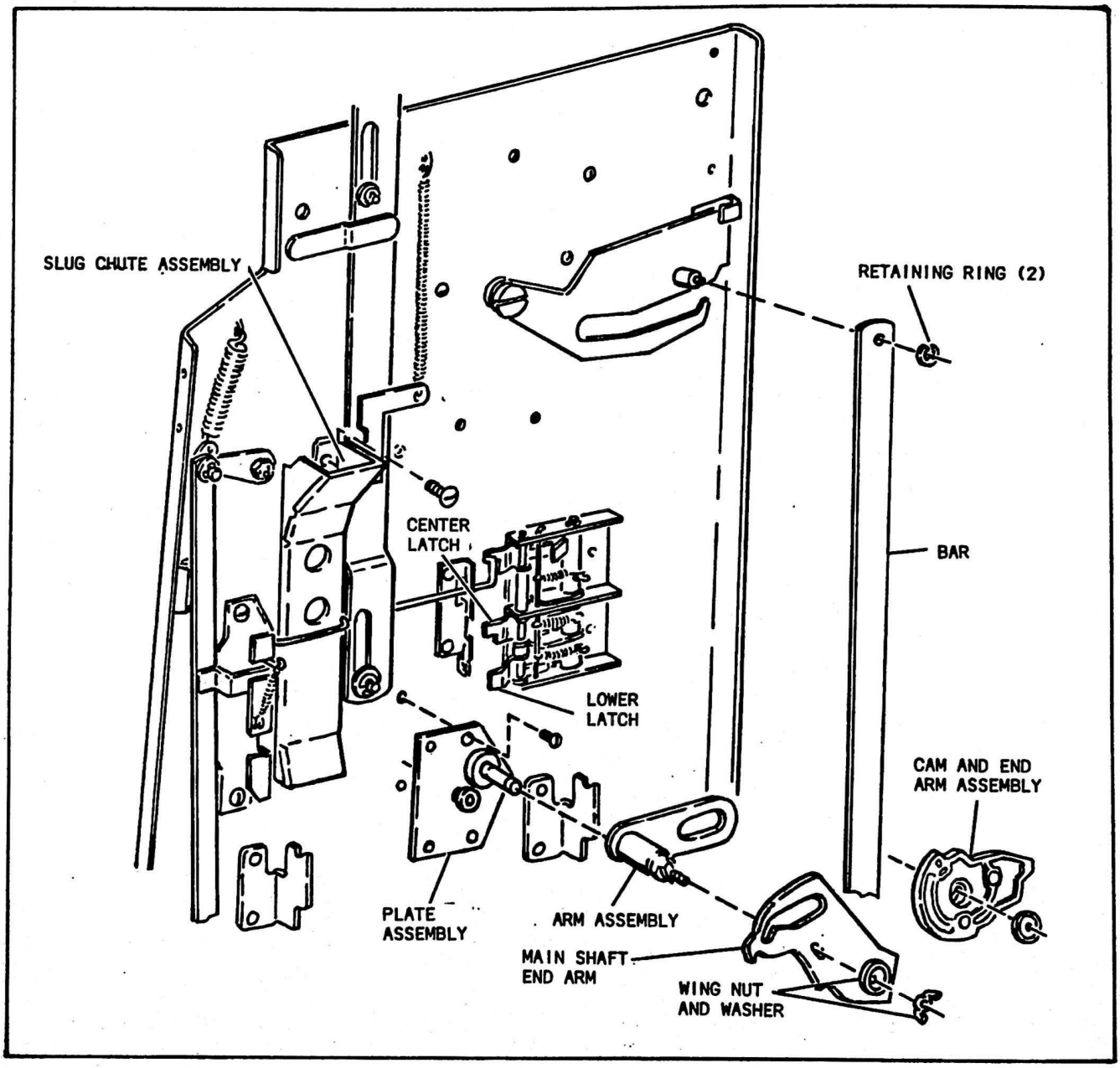
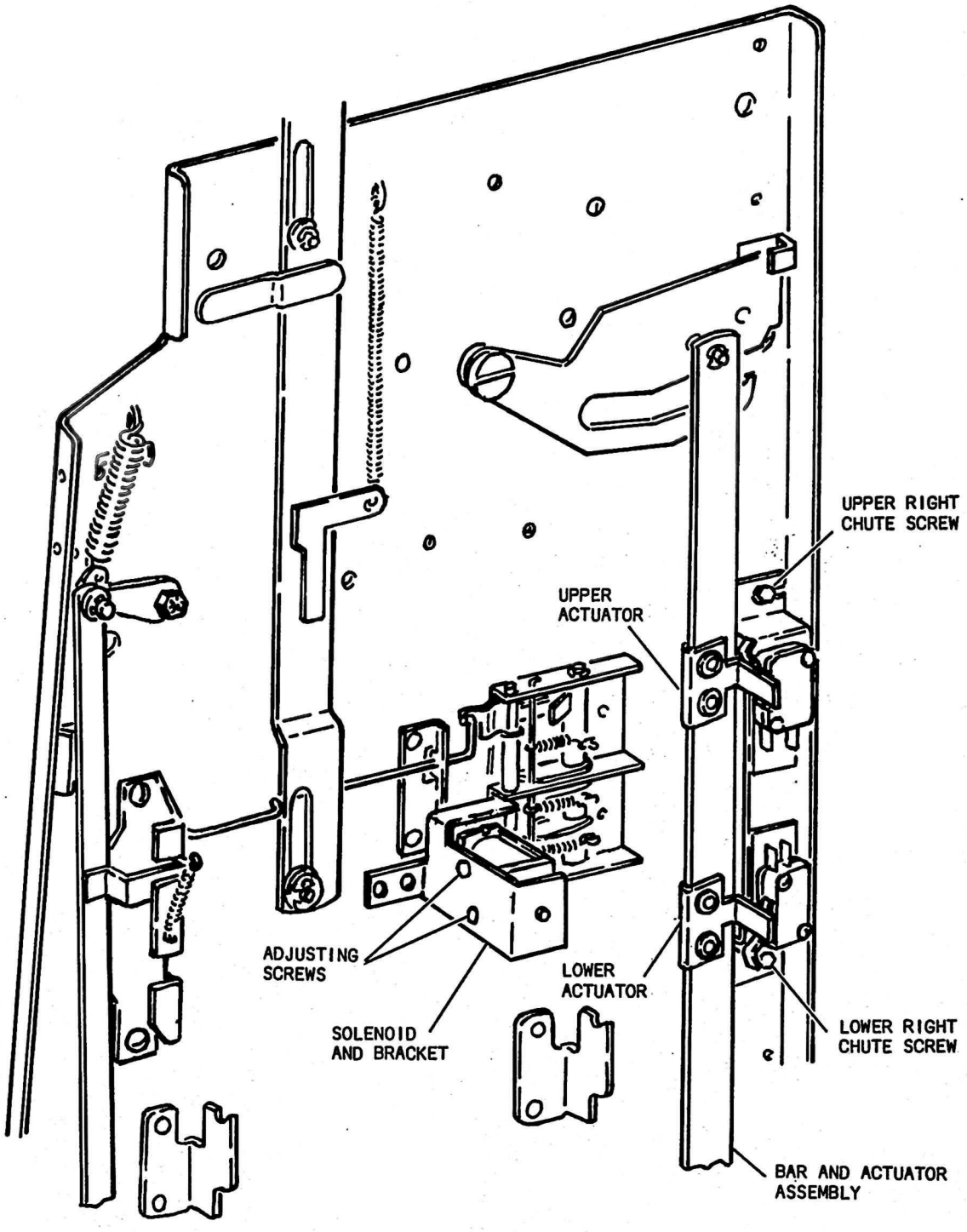


FIGURE 5

9. Remove the following items from the mechanism's right sidewall (see Figure 5):

   - Slug rejector assembly (not shown)
   - Wing nut and washer
   - Main shaft end arm or cam & end arm assy.
   - Recorder (not shown)
   - Slug chute assy. (if applicable)
   - Plate assembly, arm assembly & four screws
   - Bar & two retaining rings



ADJUSTING ACTUATORS

1. Loosen actuator screws
2. Move actuator to correct position
3. Retighten screws

FIGURE 6

10. Remove screw from upper right chute stud and replace (DO NOT tighten) with a 10-32 x 3/8 hex hd screw and washer (7/16 x .203).

11. Remove screw from lower right chute stud.

12. Attach bracket and switch assembly as shown in Figure 6 using other 10-32 x 3/8 hex hd screw - tighten both screws.

13. Attach bar and actuator assembly using the two retaining rings removed in Step 9.

14. Adjust the lower actuator to actuate the lower switch to the normally open position, immediately upon upward movement of the bar (see Figure 6 Insert).

15. Adjust the upper actuator by the following procedure:

    A. Pull forward a pull knob on a column that is not empty.

    B. Depress lower and center latches then continue pulling knob forward slowly.

    C. Continue pulling knob - adjust the upper actuator to actuate the upper switch immediately after the third click is heard from the ratchet plate.

16. Attach solenoid and bracket using two of the screws removed in Step 9.

17. Adjust solenoid by the following procedure:

    A. Loosen adjusting screws.
    B. Seat plunger into coil.
    C. Push plunger against center latch until latch is fully depressed.
    D. Retighten adjusting screws.

18. Attach sidewall harness to solenoid (see Figure 7).

19. Attach sidewall harness to the switch assembly:

- 2-wire disconnect - lower switch
- 4-wire disconnect - upper switch

20. Attach wire clip and fasten sidewall harness as shown.

21. Connect ACMR harness and sidewall harness to the Billmate harness.

NOTE

Set all price shaft arms on both price selector shafts in the non-operating position.

22. Place money box in Billmate.

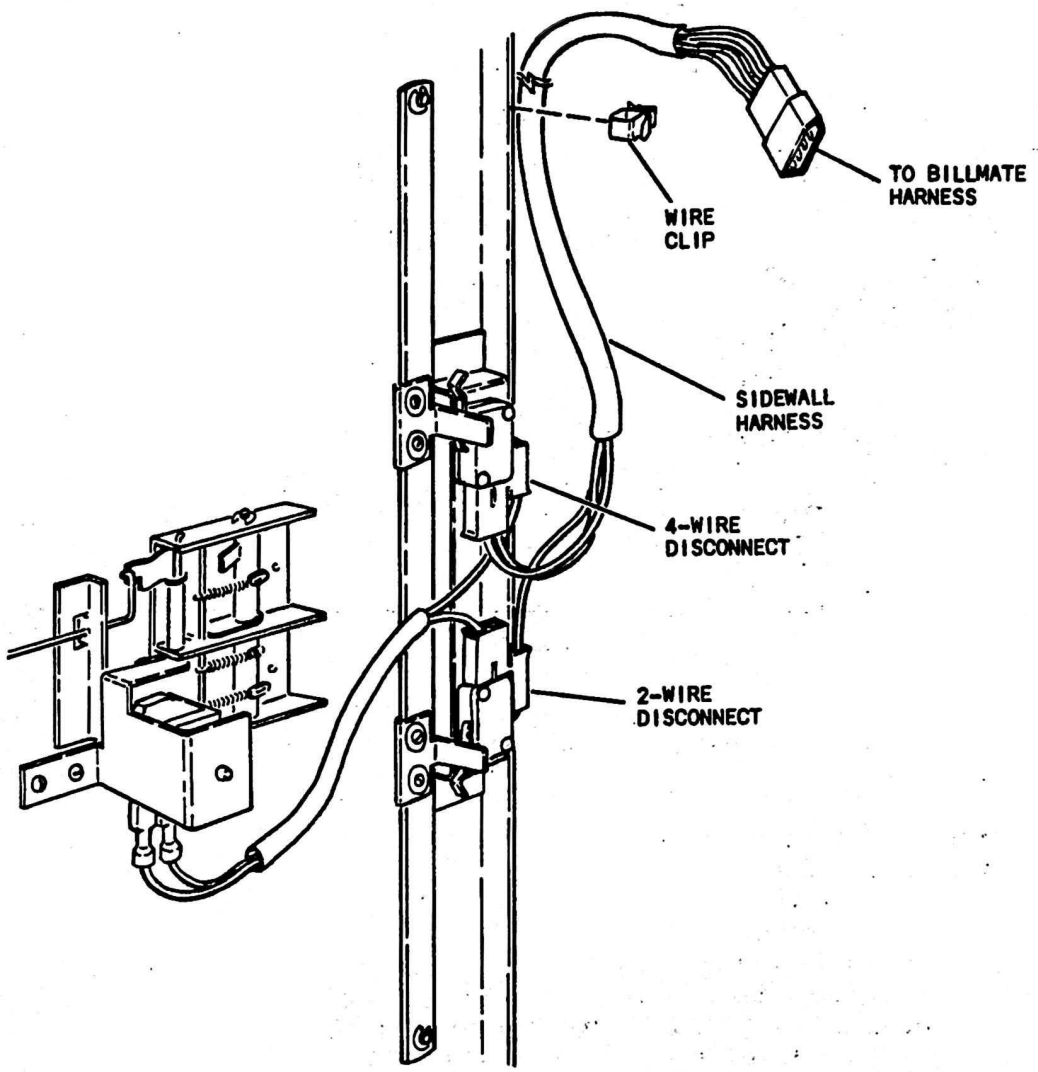


FIGURE 7

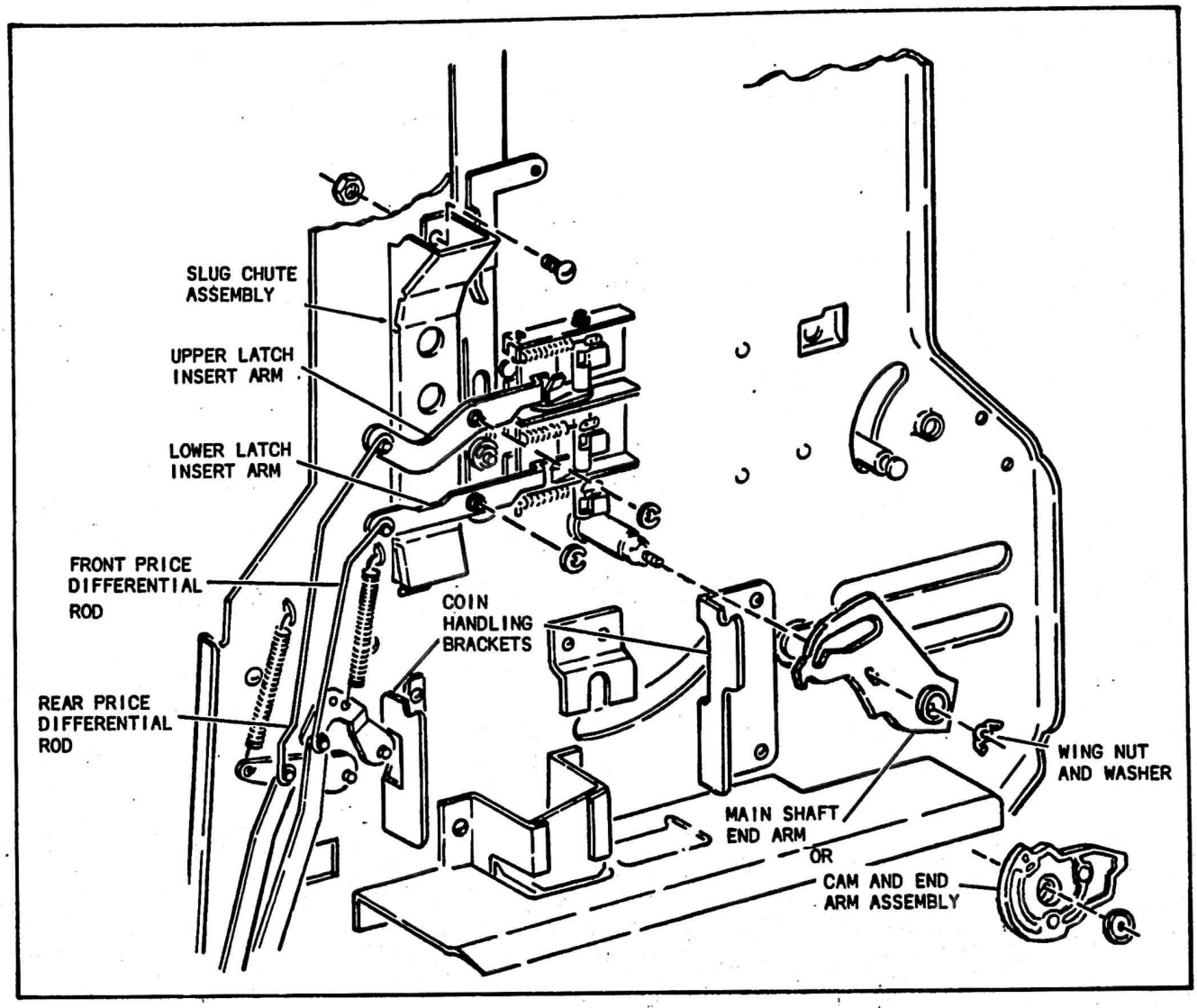


FIGURE 8

9. Remove the following items from the mechanism's right sidewall (see Figure 8)

   - Slug rejector assy. (not shown)
   - Wing nut and washer
   - Main shaft end arm or cam & end arm assy.
   - Recorder (not shown)
   - Slug chute assy. (if applicable)
   - Rear price differential rod & two retaining rings
   - Front price differential rod & two retaining rings
   - Upper latch insert arm assy. & retaining ring
   - Lower latch insert arm assy. & retaining ring
   - Top screw from both the left and right coin handling brackets (do not discard)

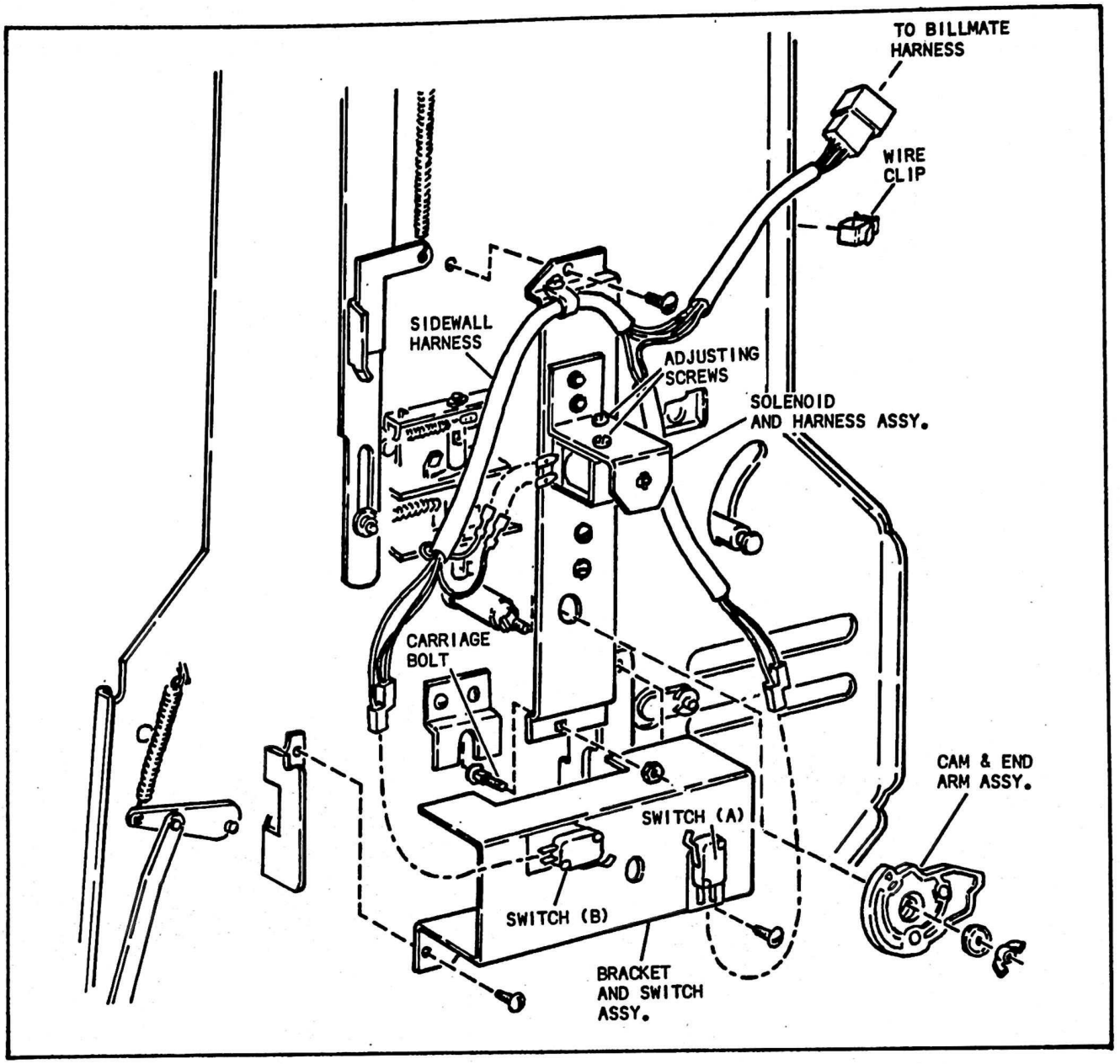


FIGURE 9

10. Attach solenoid and harness assy. using one of the screws removed in Step 9, and the carriage bolt and No.10 nut (see Figure 9)
11. Adjust solenoid by the following procedure:
    A. Loosen adjusting screws.
    B. Seat plunger into coil.
    C. Push plunger against latch until latch is fully depressed.
    D. Retighten ajdusting screws.
12. Attach the bracket and switch assy. with two No.8 x .31 hex hd screws using the top holes in the left and right coin handling bracket.
13. Adjust the cam & end arm assy. so that the screws are centered in the slots.
14. Attach cam & end arm assy. with the washer and wing nut.
15. Adjust switch (A) to actuate to the normally open position, immediately upon cam rotation.

16. Adjust switch (B) by the following procedure:

    A. Pull forward a pull knob on a column that is not empty.

    B. Push solenoid plunger against latch until latch is fully depressed.

    C. Continue pulling knob - adjust switch (B) to actuate immediately after the third click is heard from the ratchet plate.

17. Attach sidewall harness to the switch assembly:

    . 2-wire disconnect - switch (A)
    . 4-wire disconnect - switch (B)

18. Attach wire clip and fasten sidewall harness as shown.

19. Connect ACMR harness and sidewall harness to the Billmate harness.

NOTE

Set all price shaft arms on both price selector shafts in the non-operating position.

20. Place money box in Billmate.

REMOVING & REPLACING THE OLD COIN INSERT CASTING

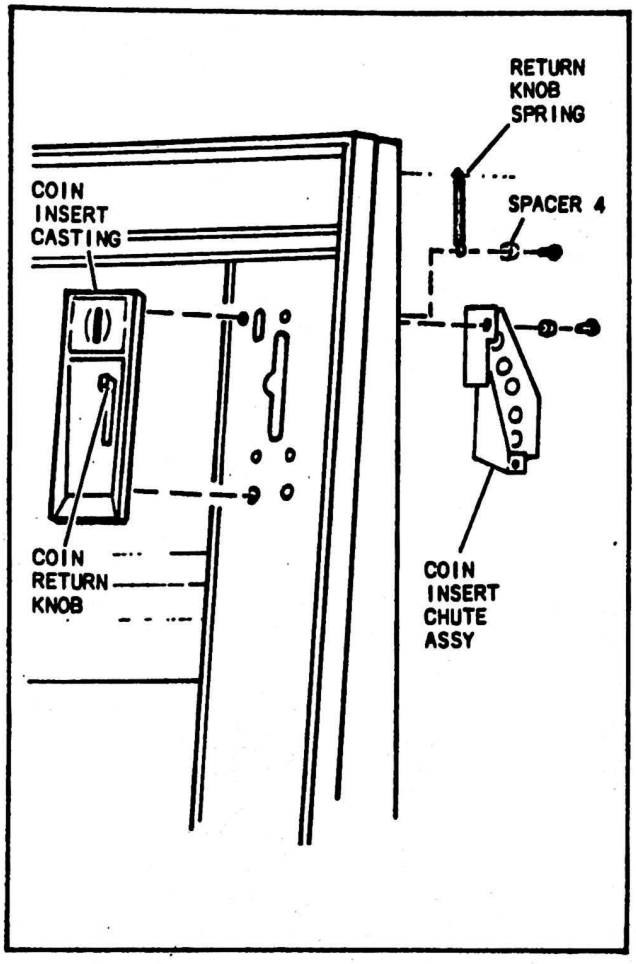


FIGURE 10

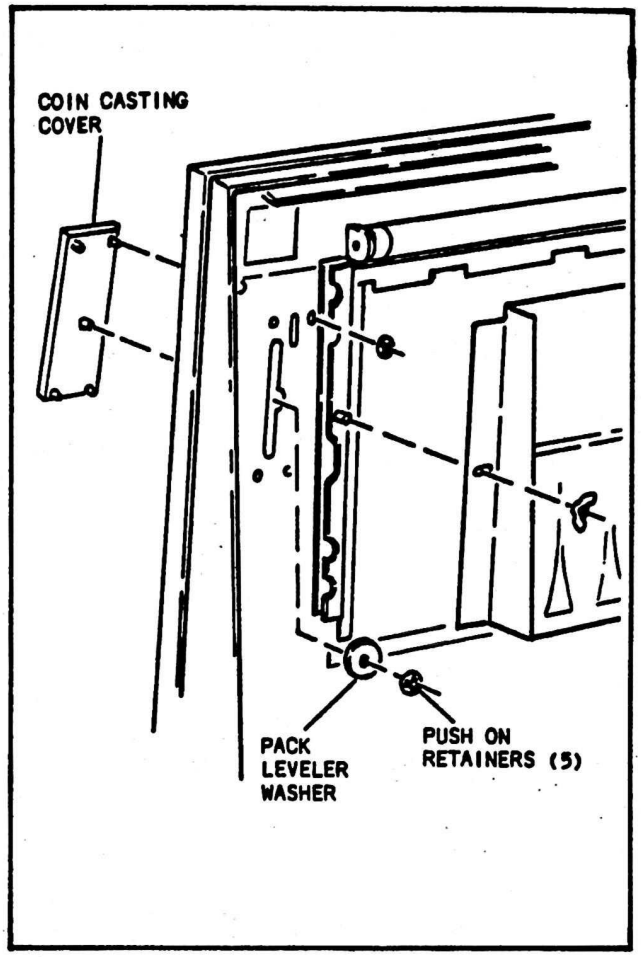


FIGURE 11

21. Remove the upper display panel assembly.

22. Place adhesive label over the wording "INSERT EXACT AMOUNT OF NICKELS, DIMES, QUARTERS" located on the display panel.

23. Remove the following items from the door assembly (see Figure 10)

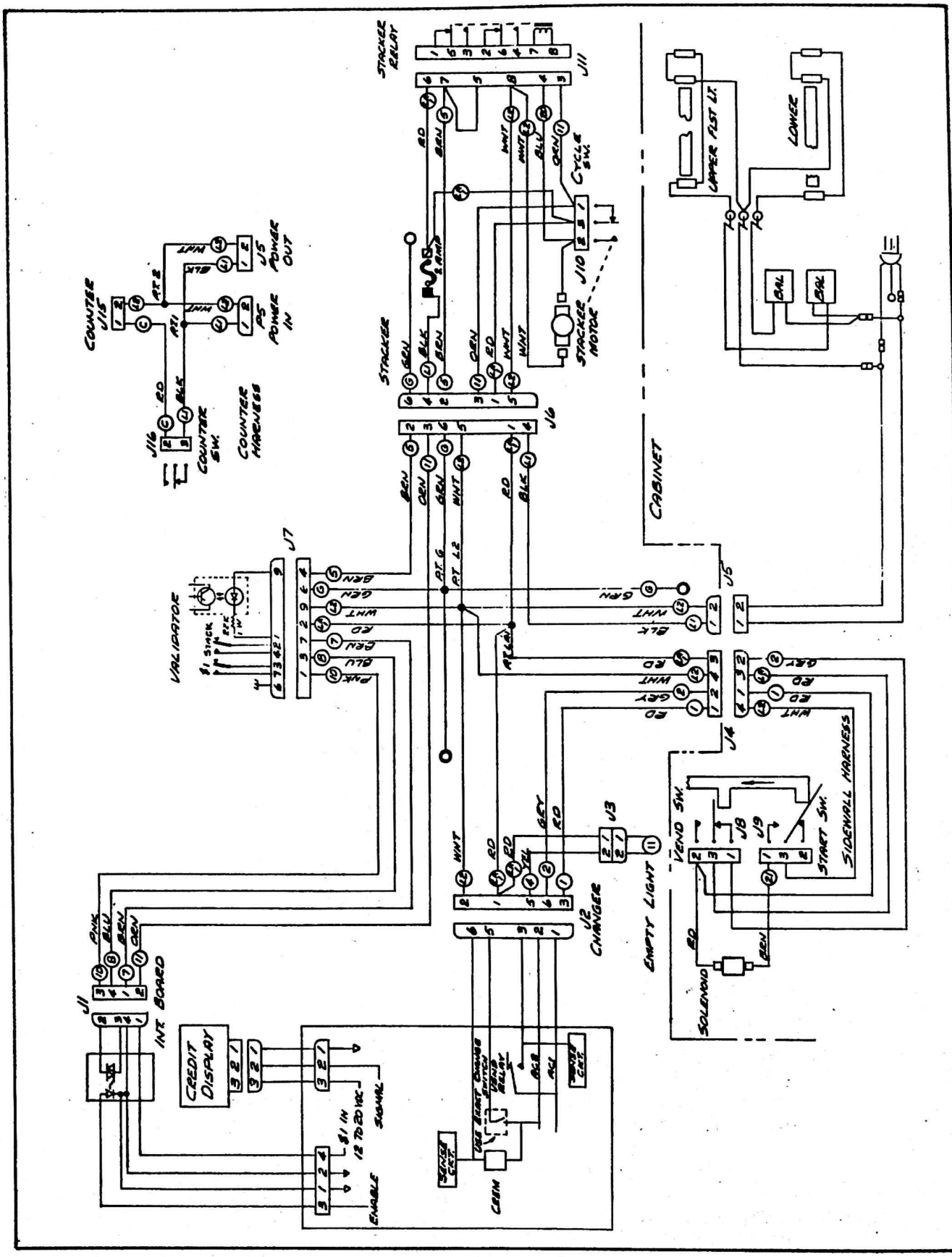
    - Coin insert casting, four spacers, four screws
    - Coin return knob
    - Return knob spring
    - Coin insert chute assembly

24. Attach the coin casting cover, using the pack leveler washer and five push on retainers (see Figure 11)

25. Replace the upper display assembly.

26. Replace cabinet door.

27. After unit preparation, test vend; if buzzing sound is heard, readjust solenoid.



WIRING DIAGRAM

UNIT PREPARATION

LOADING CHANGER:
Fill the respective coin tubes (See Figure 12) to the desired levels by inserting coins one at a time. Check to assure that the coins stack flat in the tubes. To inventory change tubes, press 5¢ inventory button for nickels, 10¢ inventory button for dimes and both buttons at the same time for quarters.

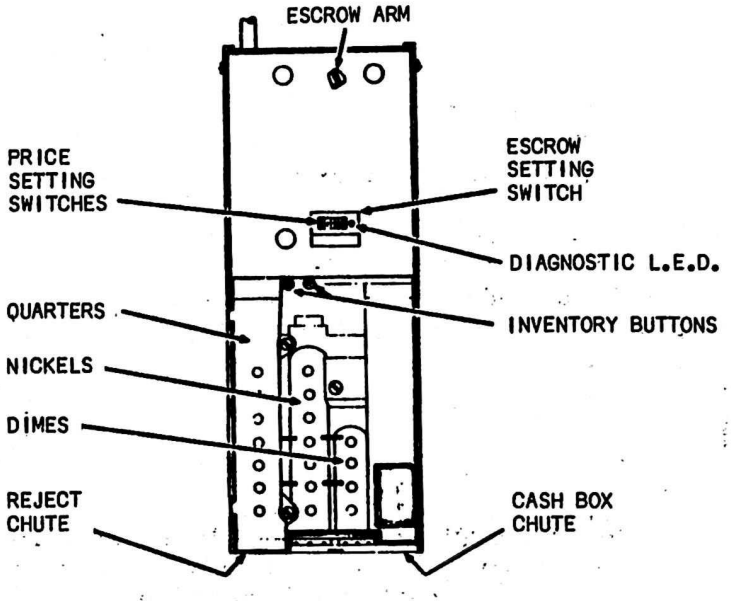


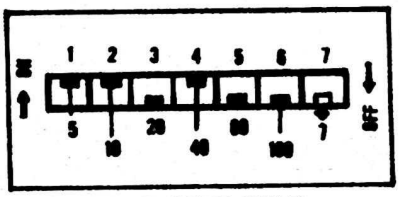
FIGURE 12

NOTE

The BILLMATE unit will not accept dollar bills unless at least 15 quarters are in the changer's quarter tube. If the quarter level is satisfied, the BILLMATE will accept up to three dollar bills for each transaction.

The USE EXACT CHANGE light illuminates, only if there are less than 8 nickels in the changer's nickel tube. The light is not dependent upon the quarter or dime tube levels.

SETTING PRICES:
Price setting switches are located behind the coin validator. Use a ball point pen and set the correct combination of switches (1 thru 6) to the ON position to equal desired price setting (see following Example). Vend price may be set from 5¢ to $3.15. DO NOT SET WITH A GRAPHITE PENCIL.



EXAMPLE ABOVE SHOWS
SWITCHES SET FOR 55¢

SETTING ESCROW FUNCTION:
The ESCROW switch is the 7th switch position located at the right-hand end of the price setting switches. Set the ESCROW switch to the OFF or down position (cigarette mode).

CHECK DIAGNOSTICS:
The LED located to the right-hand side of the price setting switch serves to indicate the operation of the main p/c board, the escrow function and coin sensors.

ALLOW 10 SECONDS AFTER PLUGGING IN UNIT FOR PROPER INDICATION.

Escrow Arm In The Up Position:
- LED steady on - Normal.
- LED blinks - Escrow arm out of adjustment.

Escrow Arm In the Down Position:
- LED blinks (light off longer than on) - Normal.
- LED steady on - Malfunction with main p/c board.
- LED blinks (light on longer than off) - Malfunction with a coin sensor.
- LED off - No power.

CLEANING

COIN VALIDATOR:
Coin passageways must be kept clean at all times for proper operation. For cleaning, unit can be washed with a mild soap detergent; rinse with clean water and dry thoroughly before replacing in changer. DO NOT USE SOLVENT OR ANY ABRASIVE MATERIALS. DO NOT SPRAY WITH ANY TYPE LUBRICANTS.

CHANGER:
Remove parts from changer and clean with water and a mild soap detergent. Rinse with clean water and dry thoroughly before replacing in changer. DO NOT SPRAY WITH ANY TYPE OF LUBRICANT.

BILL VALIDATOR:
The bill insertion opening may be cleaned with warm water and mild detergent, using a lint-free cloth. Periodically clean the scanning heads and drive belts with denatured alcohol.

Figure	Title	Page
A	Billmate 1	18
B	Door Assembly	19
C	Coin Receptacle Assembly	22
D	Bill Stacker Assembly	23
E	Bill Stacker Motor Assembly	26
F	Cabinet	27
G	Wire Harness	28

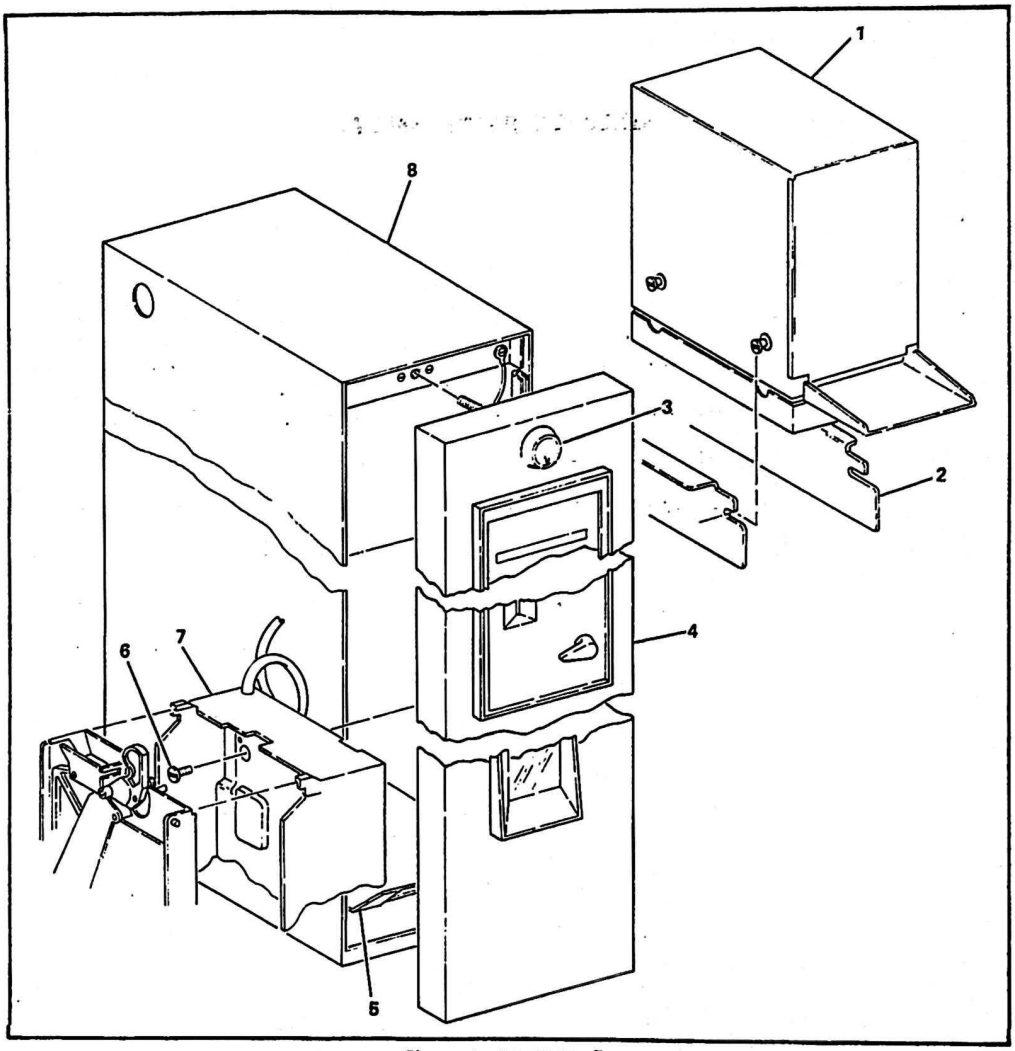


Figure A. BILLMATE 1™

Index No.	Description	Part Number	No. Req.
1	Bill Validator, $ (34-06-105)	5261215	1
2	Stacker Assembly, Bill W/Rails (Shown incomplete, See Figure D for breakdown)	5911304	1
3	(NRI 8673-5) Lock #63-075	5263895	1
4	Billmate 1 Door Assembly (See Figure B)	5911214	1
5	Platform Money Box	5911115	1
6	Screw, 8-32 x 5/16 PHS	2302054	3
7	Cointron 525 B - Includes either of the following US & Canadian Coins US Coins Only	- 5306055 5305055	1 - -
8	Cabinet, Billmate 1	5911120	1

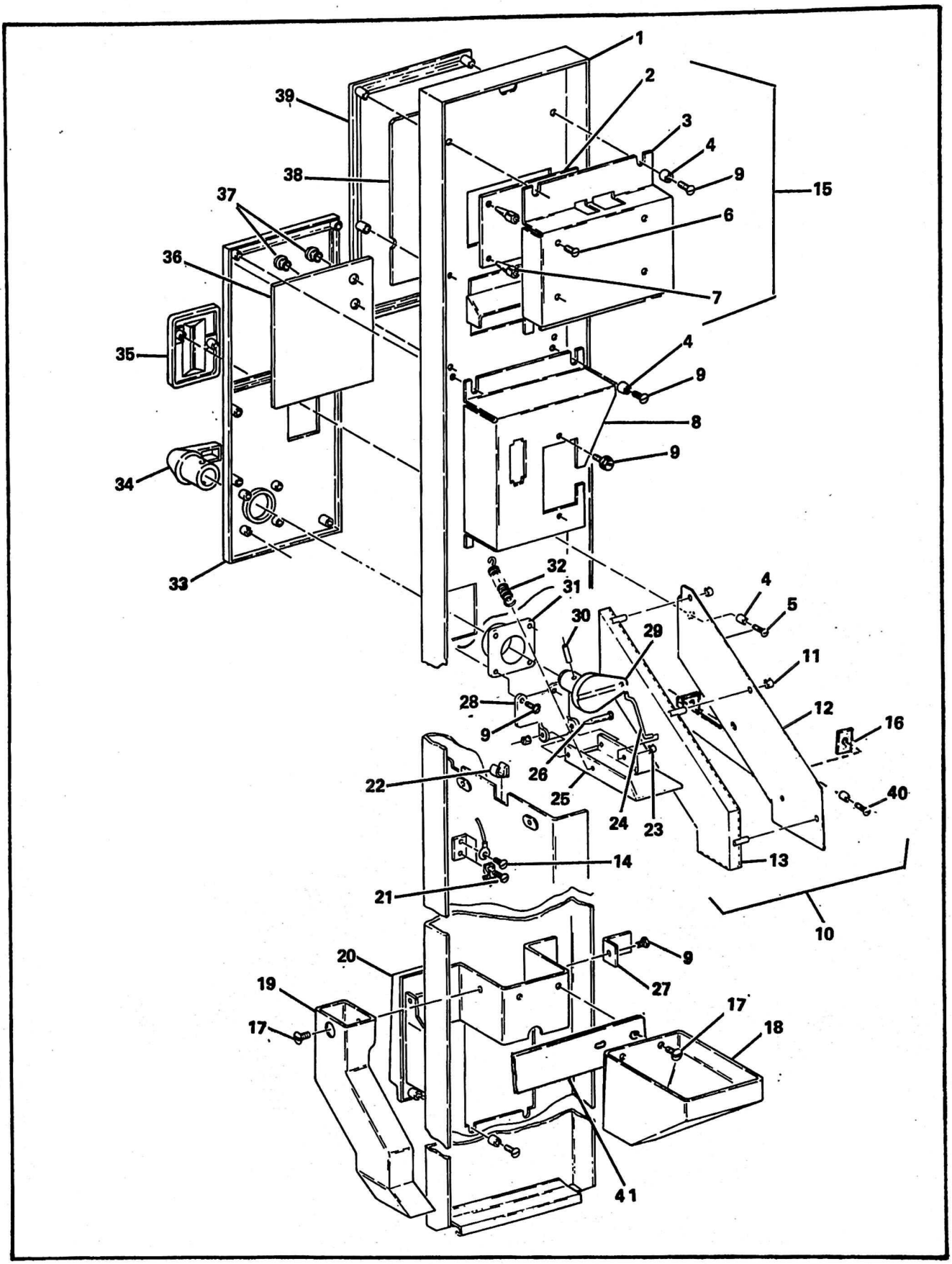


Figure B. Door Assembly

Index No.	Description	Part Number	No. Req.
	Door Assembly, Billmate 1 (See Figure/Index A/4 for next higher assembly)	5911214	Ref
1	Panel, Door, Changer/Validator	5911224	1
2	PCB, Display, Cointron	5305608	1
3	Bracket, PCB	5911207	1
4	Spacer Cup	2302053	16
5	Screw, No.8-10 x .38 HHS	1437204	2
6	Screw, No.6-32 x 1/4 PHS S/T	9900130	4
7	Support, Circuit Board	5911208	4
8	Bracket, Receptacle & Interface PCB Mtg	5911211	1
9	Screw, No.8-32 x 5/16 Hex Hd T/F	1451056	17
10	Coin Chute Assembly, Upper	3152337	1
11	Speed Clip, Compression Ring	2366055	7
12	Plate & Bracket Assembly	3152327	1
13	Chute Coin	3152029	1
14	Screw, No.8-32 x 5/16 PNS T/F W	4047095	1
15	Plate & Support Assembly, PCB	5911215	1
16	Plate, Harness Retainer	5911213	1
17	Screw, No.8-32 x .31 THS T/C	9900166	1
18	Chute, Coin Return	3152306	1
19	Cash Box Chute	3152307	1
20	Coin Receptacle Assy. (See Figure C)	1452030	1
21	Screw, No.8-32 x 1/2 PHS S/Tap	9900161	1
22	Clip Wire	1402100	1
23	Speed Clip, Compression	2366055	6

Index No.	Description	Part Number	No. Req.
24	Link, Scavenger	1452054	1
25	Arm, Scavenger	3152028	1
26	Latch Pin	1127837	1
27	Bracket, Harness Retainer	5911212	1
28	Bracket, Scavenger Pivot	1452052	1
29	Cam, Scavenger	1452192	1
30	Pin, Cotter	9900098	1
31	Bearing, Scavenger	1402014	1
32	Spring, Scavenger Pivot	1144014	1
33	Casting, Scavenger & Readout	1452050	1
34	Handle, Scavenger	1452191	1
35	Coin Insert	1452061	1
36	Insert, Instructions	5911222	1
37a	Lens, Indicator, Lower, Red	3502081	1
37b	Lens, Indicator, Upper, White	5004418	1
38	Insert, Instructions, Credit Readout	5911210	1
39	Casting, Push Button Bezel	1452051	1
40	Screw, No.8-32 x .38 Hex Hd T/F	9900106	1
41	Stop, Coin Chute	5911226	1

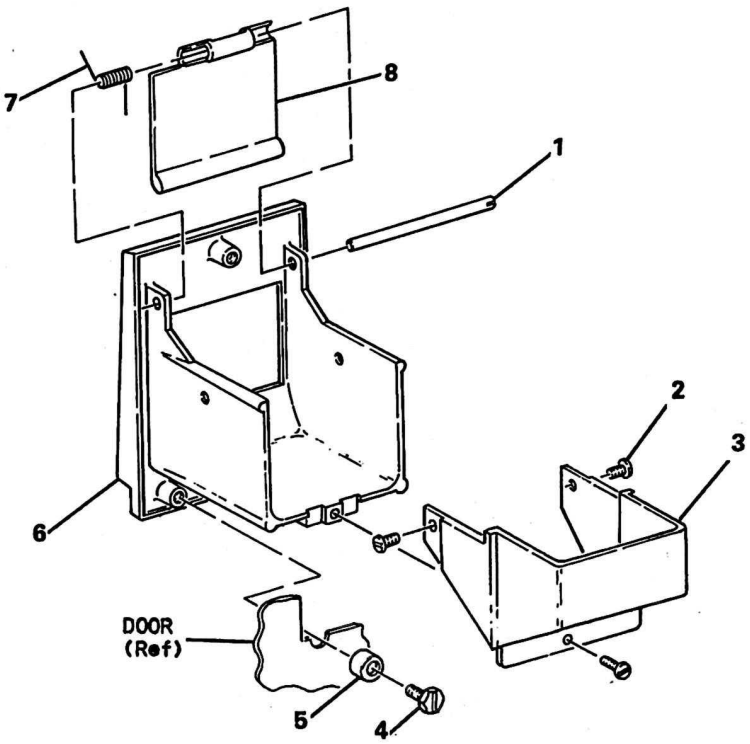


Figure C. Coin Receptacle Assembly

Index No.	Description	Part Number	No. Req.
	Coin Receptacle Assembly (See Figure/Index B/20 for next higher assembly)	1452030	Ref
1	Pin, Gate	1272039	1
2	Screw, No.6-20 x 3/8 PHS T/S	9900203	3
3	End, Coin Cup	1452031	1
4	Screw, No.8-10 x .38 Hex Hd	1437204	3
5	Spacer, Cup	2302053	3
6	Coin Receptacle	1272131	1
7	Spring, Coin Return Door	1212117	1
8	Gate, Coin Receptacle	1272132	1

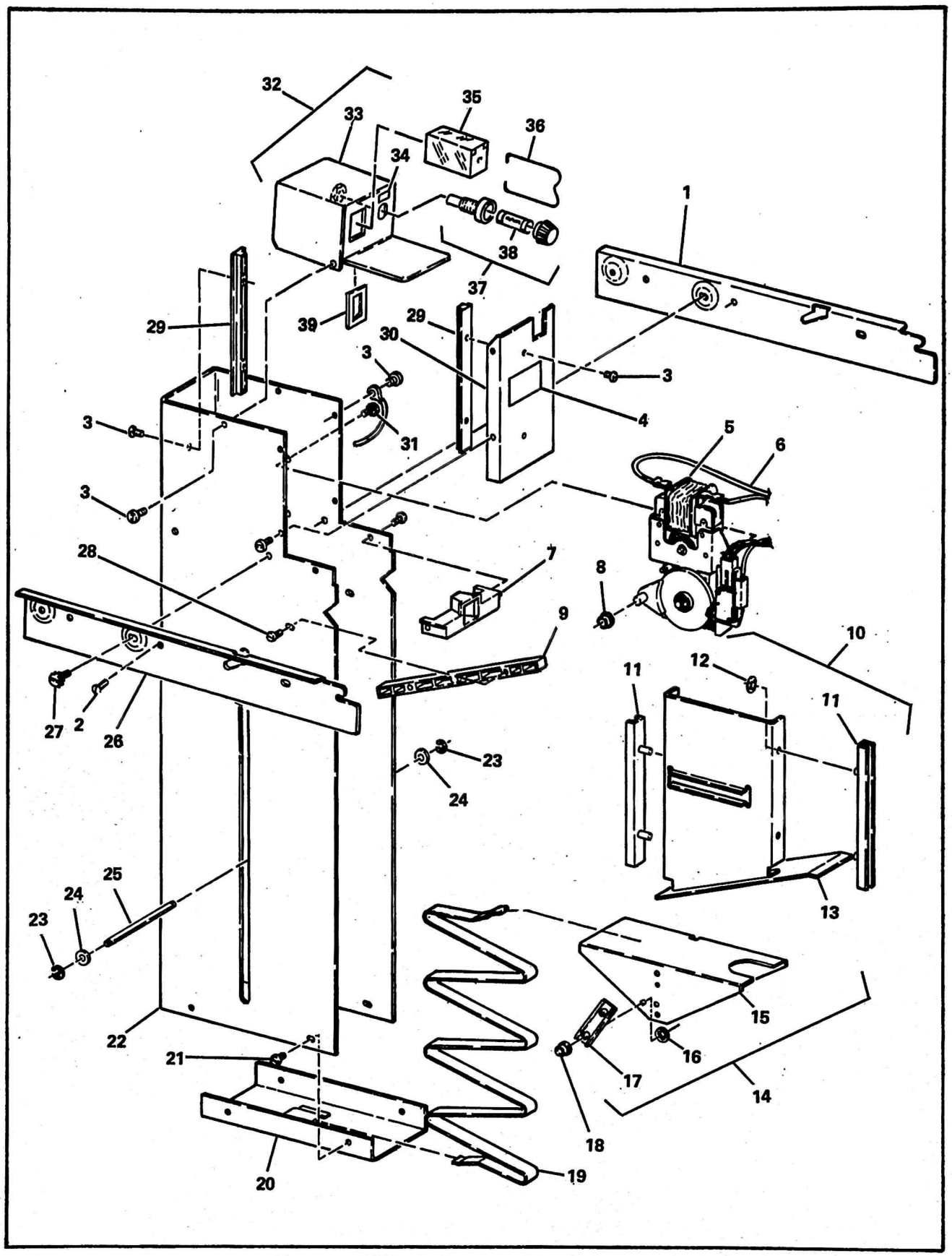


Figure D. Bill Stacker Assembly with Bracket

Index No.	Description	Part Number	No. Req.
	Stacker Assembly, Bill, w/Brackets (See Figure/Index A/2 for next higher assembly)	5911304	Ref
1	Plate, Validator Mounting, Right	5004616	1
2	Screw, Lock Plate	5264629	2
3	Screw, No.6-20 x .25 PHS T/C	5004638	6
4	Label, Warning	5004159	1
5	Motor Assembly, Stacker (See Figure E)	5004633	1
6	Harness, Stacker	5911302	1
7	Alignment Block	5274074	1
8	Bearing, Flange	5004614	1
9	Currency Retainer Rail	5004607	2
10	Assembly, Pusher Plate	5004619	1
11	Pusher Plate Guide	5004610	2
12	Push-On Retainer, .187	5201266	4
13	Weld Assembly, Plate	5004620	1
14	Platform Assembly, Bill	5004618	1
15	Platform Assembly	5272268	1
16	Push-On Retainer, .125	1217162	4
17	Bill Platform Guide	5004612	1
18	Bearing	5264789	4
19	Spring, Plate	5004613	1
20	Weld Assembly, Mounting Plate	5004623	1
21	Screw, No.6-32 x 1/4 PHS S/T	9900130	10
22	Weld Assembly, Stacker Housing	5004625	1
23	Retaining Ring, Reinforced "E" Type, .187	9900418	2
24	Nylon Washer	5220042	2

Index No.	Description	Part Number	No. Req.
25	Rod, Spring Retainer	5004617	1
26	Plate, Validator Mounting, Left	5004615	1
27	Screw, No.8-32 x 1/4 PHS w/Lockwasher	9900138	4
28	Screw, No.8-18 x 3/8 PHS Tapping	7207019	4
29	Pusher Guide	5004609	2
30	Plate, Front	5004605	1
31	Screw, No.6-32 x 5/16 THS w/Lockwasher	9900151	3
32	Cover & Harness Assembly	5911305	1
33	Cover, Stacker (Relay Mtg)	5911300	1
34	Label, Fuse AGC2	5911122	1
35	Relay, DPDT-120 VAC	5911301	1
36	Relay, Retainer	5262484	1
37	Fuse Holder Assembly	2301071	1
38	Fuse 2 Amp	4071543	1
39	Retainer	5271968	1

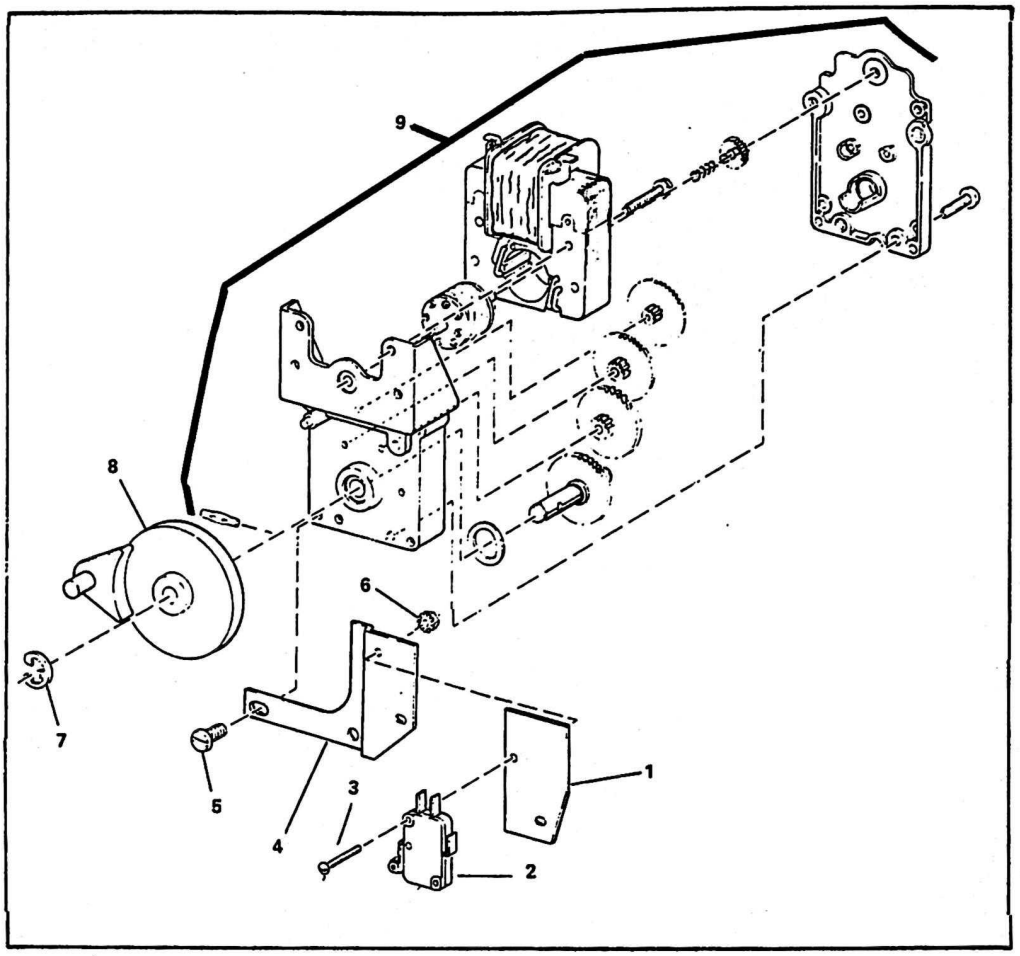


Figure E. Bill Stacker Motor Assembly

Index No.	Description	Part Number	No. Req.
	Motor Assembly, Stacker (See Figure/Index D/5 for next higher assembly)	5004633	Ref
1	Insulation	5263723	1
2	Switch, Roller Lever	2304109	1
3	Screw, No.4-40 x 5/8 RHS	1217160	2
4	Bracket, Switch	5004608	1
5	Screw, No.8-32 x 5/16 THS T/C	9900166	2
6	Nut, No.4-40 w/Lockwasher	1217159	2
7	Retaining Ring, Reinforced "E" Type, .250	9900425	1
8	Cam, Stacker Cycle	5004611	1
9	Assembly, Motor Pin	5004635	1

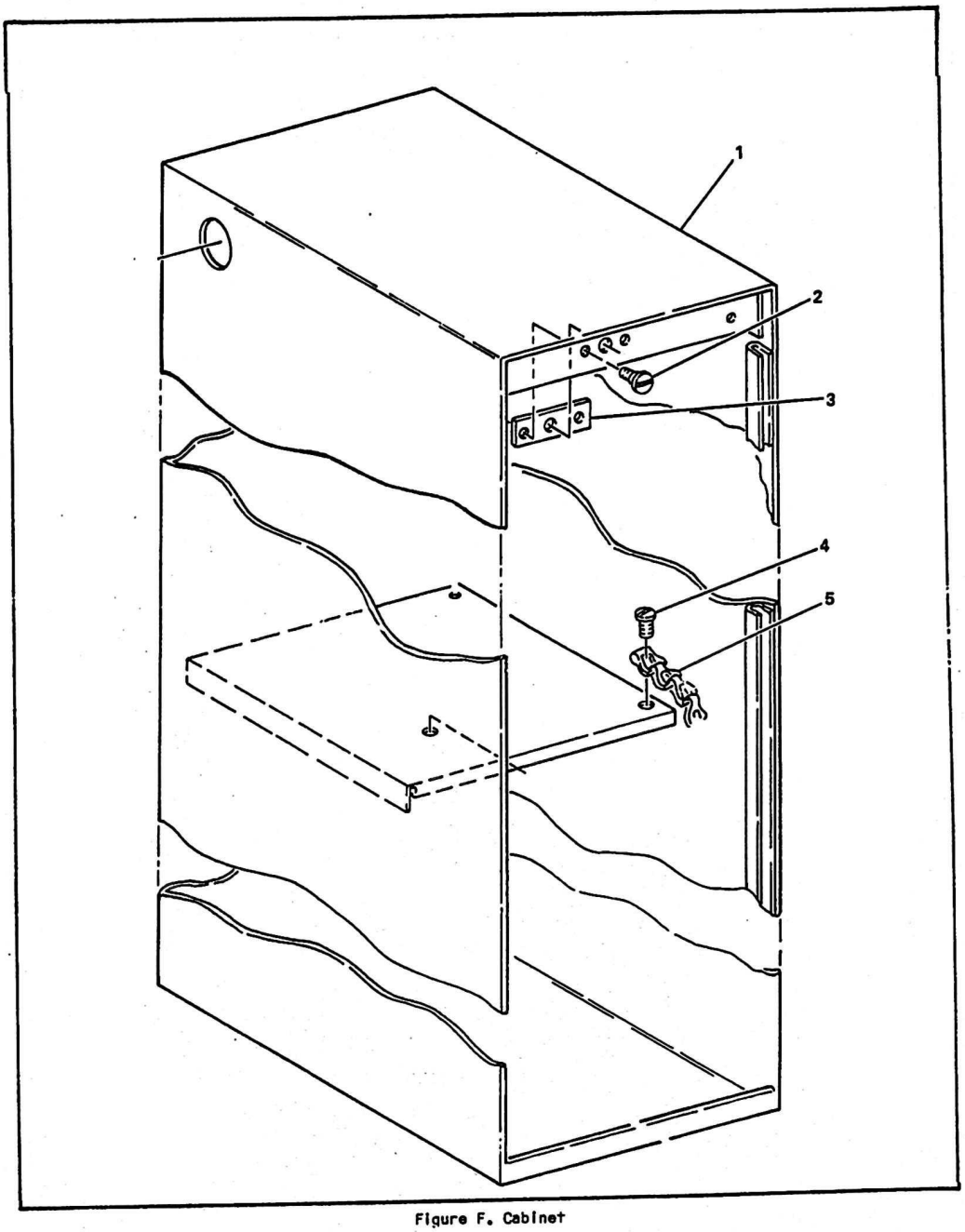


Figure F. Cabinet

Index No.	Description	Part Number	No. Req.
1	Cabinet Weld Assembly	5911100	1
2	Plate, Screw	5264629	2
3	Lock Nut Plate	5273755	1
4	No.8-32 x 1/2 PHS T/S	9900161	1
5	Chain, Door Stop	5911114	1

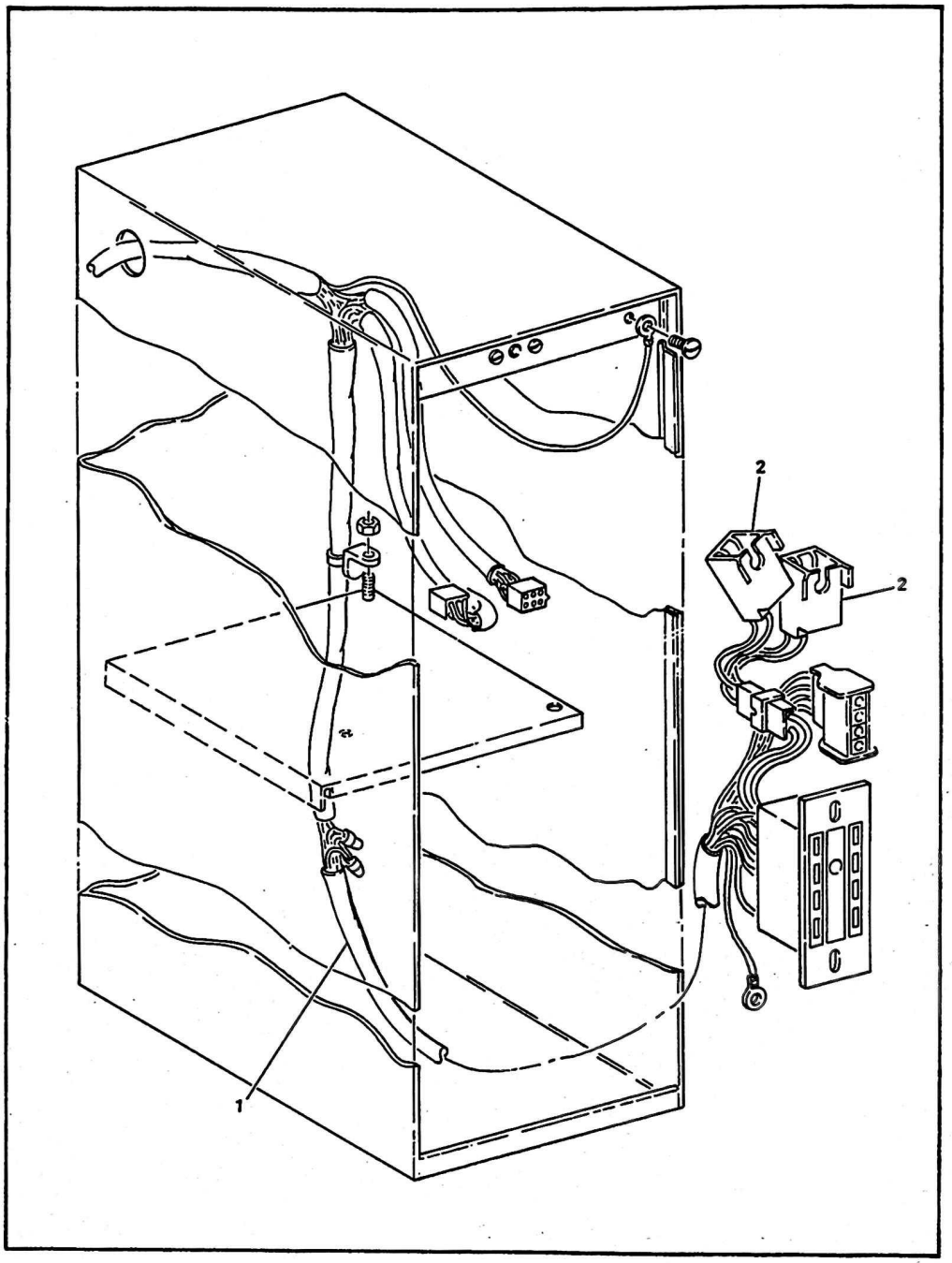


Figure G. Wire Harness

Index No.	Description	Part Number	No. Req.
	Billmate 1 Wire Harness		
1	Harness, Assy., Ch/Val	5911306	1
2	Light Indicator Assy.	3122006	2